

## ER/WM&amp;I DDT

Performance Measure

**Source/Driver.** (Name & Number from  
ISP, IAG milestone, Mgmt Action, Corres  
Control, etc )

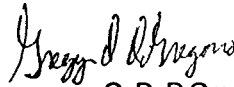
**Closure #** (Outgoing Corres  
Control #, if applicable)

February 3, 1997


**Due Date**

  
W. R. Sproles

**Originator Name**

  
G. D. DiGregorio

**QA Approval**

A. M. Tyson 

**Contractor Manager(s)**

A. K. Sieben

**Kaiser-Hill Program Manager(s)**

T. G. Hedahl

**Kaiser-Hill Director**

**Document Subject.**

TRANSMITTAL OF THE FINAL PROPOSED ACTION MEMORANDUM FOR THE SOURCE REMOVAL AT  
THE MOUND SITE, IHSS 113, REV 0 - AMT-015-97

KH-00003NS1A

**Discussion and/or Comments**

Please find enclosed the *Final Proposed Action Memorandum for the Source Removal at the Mound Site* and the Responsiveness Summary (Attachment A) for submittal to the Environmental Protection Agency (EPA) for approval. Per telecon with EPA and CDPHE on February 3, 1997, responses to all comments received during the Public Comment Period have been adequately addressed. In accordance with RFCA, approval of the PAM is requested by February 10, 1997. Please find enclosed four copies for Kaiser-Hill, five copies for the DOE and four copies for the EPA. If you have any questions regarding this document, please contact Wayne Sproles at extension 5790.

Enclosure  
As Stated

WRS/aw

cc

M. C. Broussard

J. L. McAnally

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M. R. Wood

Correspondence Control

ER Records Center (2)

ADP\* 11-00016  
1113-A-00016

# DRAFT

February 3, 1997

97-RF-XXXXX

Norma Castaneda  
ES&H Program Assessment  
DOE/RFFO

TRANSMITTAL OF THE FINAL PROPOSED ACTION MEMORANDUM FOR THE SOURCE REMOVAL AT THE MOUND SITE, IHSS 113, REV 0 – AKS-XXX-97

Please find enclosed the *Final Proposed Action Memorandum (PAM) for the Source Removal at The Mound Site* and the Responsiveness Summary (Attachment A). This revision of the PAM includes the responses to comments received during the Public Comment Period. Per telecon with the EPA and CDPHE on February 3, 1997, responses to all comments received during the Public Comment Period have been adequately addressed. In accordance with RFCA, approval of the PAM is requested by February 10, 1997.

Per our meeting on January 29, 1997, EPA's request for a copy of the Mound Field Implementation Plan and project cost estimate and the City of Westminster's request for the issuance of the T3/T4 Lessons Learned for public review are not associated with obtaining approval of the Final PAM and will be addressed separately.

Please find enclosed five copies of the Final PAM for the DOE and four copies for the EPA. If you have any questions regarding this transmittal, please contact me at (303) 966-9886.

Ann K. Sieben  
ER/WM&I Operations

Enclosures  
As Stated

# DRAFT

February 3, 1997

Tim Rehder  
United States Environmental Protection Agency  
Rocky Flats Project  
999 18th Street, Suite 500  
Denver, CO 80202-2466

## TRANSMITTAL OF THE FINAL PROPOSED ACTION MEMORANDUM FOR THE SOURCE REMOVAL AT THE MOUND SITE, IHSS 113, REV 0

Please find enclosed the *Final Proposed Action Memorandum (PAM) for the Source Removal at The Mound Site* and the Responsiveness Summary (Attachment A). This revision of the PAM includes the responses to comments received during the Public Comment Period. Per telecon with your staff on February 3, 1997, responses to all comments received during the Public Comment Period have been adequately addressed. In accordance with RFCA, we are requesting approval of the PAM by February 10, 1997.

In addition, EPA's request for a copy of the Mound Field Implementation Plan and project cost estimate and the City of Westminster's request for the issuance of the T3/T4 Lessons Learned for public review are not associated with obtaining approval of the Final PAM. These requests will be addressed separately.

We appreciate your continued support in meeting our accelerated project schedules. If you have any questions regarding this transmittal, please contact me at (303) 966-4839, or Norma Castenada of my staff at (303) 966-4226.

Steve Slaten  
Manager, Regulatory Liaison

Enclosures  
As Stated

## Attachment A

### RESPONSIVENESS SUMMARY

#### Draft Proposed Action Memorandum for the Source Removal at the Mound Site, IHSS 113, Rev. 1, December 16, 1996

##### Comments from T. Rehder, Environmental Protection Agency

- Comment #1** Page 2, Section 2.0 Project Description The last paragraph of Section 2.0 discusses thermal desorption unit performance goals, but does not completely reference applicable standards. However, the Treatment Section 3.2.3 on page 16, last paragraph does describe applicable standard references. Please mirror those standards as described in Section 3.2.3 to Section 2.0.
- Response #1** *Comment incorporated. After the Colorado Code of Regulations (CCR) reference in section 2.0, the phrase "and at levels that meet or are below Tier I Subsurface Soil Action Levels" will be added.*
- Comment #2** Page 16, Treatment Section 3.2.3 The last paragraph in this section discusses soil sampling verification following treatment. However, no discussion is provided which describes the location of the "post-treatment stockpile", or a description of precautions to be taken to ensure stability of the stockpile during sample analysis. Please include this information.
- Response #2** *Soil will be stockpiled on the east side of the treatment area (see Figure 2-1). Soil will be stockpiled in small batch size stockpiles awaiting analytical results. These stockpiles will be wetted with water to minimize dust generation. Once results are received indicating that the treated soil meets the Thermal Desorption Unit (TDU) Performance Goals, the batch size stockpiles will be moved to a larger soil stockpile, and subsequently covered with a stabilization agent (e.g., ConCover®). The Proposed Action Memorandum (PAM) does not include this level of detail, however, the handling of treated soil will be addressed in project specific implementing procedures and plans. Treated soil not meeting the TDU Performance Goals will continue to be re-treated until the goals have been met.*
- Comment #3** Page 20, National Emission Standards for Hazardous Air Pollutants (NESHAPs) Section 5.1.1 The Applicable or relevant and appropriate requirements are discussed in this section of the PAM. Please clarify this section as it appears to confuse the issue of stack monitoring for radioisotope emissions. We believe that given the safeguards present within the thermal desorption unit and based upon preliminary estimates, stack monitoring will not be required unless evidence demonstrates a release of radionuclides greater than 0.1 mrem/yr. As this section presently states, it is unclear whether or not monitoring will be conducted.
- Response #3** *We concur that evidence indicates that radionuclide emissions will result in less than 0.1 mrem/yr exposure. The statements within this section regarding stack monitoring for radionuclides are ambiguous and have been removed. Stack monitoring for radionuclides is not required and will not be performed. Perimeter monitoring for radionuclides (e.g., using high volume air samplers) will be performed to monitor occupational worker exposure.*
- Comment #4** Page 26, Section 5.2.8 This section discusses VOC and particulate Emission Controls. The original draft PAM stated the following: "Preliminary worst case calculations estimate the total VOCs in the excavated soils at 0.59 tons. The Colorado Air Quality Control Commission has found that for sources of VOCs less than 1 ton, RACT typically requires no controls." However, the revised PAM increases this estimate to 1.2 tons, and deleted the last sentence quoted above. Please explain this discrepancy and discuss procedures for employing these RACTs.

**Response #4**

*The total volatile organic compound (VOC) estimate of 0.59 tons in the original draft PAM was based upon the highest VOC concentration detected in the soil and a six hundred cubic yard contaminated soil volume. The revised total VOC estimate of 1.2 tons was based on a one thousand cubic yard contaminated soil volume. The contaminated soil volume was revised upward to ensure that only one APEN would be required even if a larger volume of contaminated soil is excavated. For consistency, the PAM was revised to reflect the estimate used to prepare the APEN.*

*It should be understood that both estimates are worst case. The total VOC estimate of 0.59 tons used the highest concentration detected. Numerous samples show that the average concentration over the entire 600 cubic yards will be much lower. The total VOC estimate of 0.59 tons represents a reasonable worst-case. The revised total VOC estimate of 1.2 tons was developed primarily for administrative efficiency.*

*In any circumstance, Reasonable Available Control Technology (RACT) is typically applied when VOC emissions exceed 1 ton (See Statement of Basis, Colorado Air Pollution Control Regulations, Regulation No. 3, July 15, 1993). The 1-ton limit is guidance and represents a benchmark against which the expected emissions may be evaluated. Clearly, the reasonable worst case estimate of 0.59 tons of total VOCs supports "no controls" as RACT. Even if the total VOCs did approach the 1.2-ton estimate employed to avoid multiple APENs, the 1.2-ton estimate remains close enough to the 1-ton benchmark to conclude that no control is RACT.*

**Comment #5**

The use of gas generators to supply power to the TDU was questioned during our meeting on December 11, 1996. Please notify us if an alternate power source will be utilized.

**Response #5**

*Electric line power will be supplied to run the TDU chiller, blowers, and cooling fluid pumps from a power panel located at the job site. However, gasoline-powered pumps and generators will be used for two tasks that must be performed at site locations which are relatively distant from the electric power breaker panel. These "remote" tasks include (a) the application of dust control water at locations on the south and east sides of the site, and (b) the operation of air samplers at various locations around the site.*

*It should also be noted that diesel-powered portable lighting will be used during nighttime operations. Approximately five portable light stands will be used for the Mound Site project. In addition, a diesel-powered air compressor will likely be used to operate air pumps used in transferring condensate.*

*Because of the relatively small horsepower rating of the equipment and the limited hours of equipment operation, total estimated emissions from the internal combustion engines will be insignificant and therefore exempt from APEN requirements (Colorado Air Quality Control Commission Regulation No. 3, Part A, Section II D). Actual data from historical site operations of a similar nature and utilizing similar portable internal combustion engines supports this estimate. If additional, alternate power sources are used, the Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE) will be notified.*

## Comments from Carl R. Palmer, PE, Consultant

Note The following comments have been paraphrased from the original

**Comment #1**      Section 1 , IMPACT OF RADIOACTIVE MATERIAL    The TDU process specification needs to fully reflect these important requirements (radiological control procedures) to absolutely contain and control radioactive materials    This requirement should exist from the point of excavation through the treatment process feeding and discharging and back to the point of redispotion of the soil

**Response #1**      *A NESHAPS evaluation was performed to determine the controlled and uncontrolled dose to the public based on the maximum radionuclide concentration in the soil    The impacts from this evaluation have been addressed in the project implementing plans and procedures*

*All field activities, including soil treatment, will be performed in accordance with the Rocky Flats Environmental Technology Site (RFETS) Radiological Control Manual and 10 CFR 835, Radiation Protection of Occupational Workers    Radiological controls include personnel, equipment, and air (high volume air samplers) monitoring during all field activities    In addition, monitoring of the soil will be performed during excavation activities*

**Comment #2**      Section 2 , WASTE MANAGEMENT ISSUES    The process specifications (TDU) should give preference to (or even require) features that eliminate the possibility of the generation of radioactive residuals from the gas treatment system    As a minimum, a treatment vendor should be required to disclose the characteristics of each process residual and receive a technical and economic penalty for those that are potentially radioactive in the event that the soil is radioactive

**Response #2**      *One of the criteria during the selection of a treatment process was its ability to prevent the spread of radiologically contaminated particulates during soil treatment    Based on previous projects at RFETS, the thermal desorption process that was used has been shown to be effective at achieving this goal    Based on this previous experience, the process specifications have been modified to minimize radiological residues*

**Comment #3**      Section 3 , REGULATORY FRAMEWORK    Specific ARARs seem to have been omitted from the discussion of the regulatory framework    Specifically, these are the standards for organic air emissions for process vents (40 CFR 264, Subpart AA), air emission standards for equipment leaks (Subpart BB) and air emission standards for tank systems (Subpart CC)    These standards clearly impact this treatment activity and should be addressed in the design and operation of the TDU facility

**Response #3**      *During the initial ARAR evaluation, Subparts AA, BB, and CC were determined to be neither applicable nor relevant and appropriate as explained below*

*Subpart AA is not applicable because the rule is based upon waste management involving organic distillation/separation, not low temperature thermal desorption (See 55 FR 25458 right column, bottom)    In addition, Subpart AA is not relevant and appropriate because low temperature thermal desorption is typically conducted in the field using mobile units which do not have process vents of the type contemplated in that rule    In fact, EPA stated "Waste management operations involving soil excavation, and low temperature thermal desorption can be considerably different from the waste management operations (ie , distillation/separation processes) regulated in Subpart AA" (Id )*

*With regards to Subpart BB, the requirements would be applicable if solutions containing greater than 10% volatile organics by weight are transferred through pumps or valves. In the unlikely event that small amounts of liquids containing greater than 10% volatile organics by weight are transferred through pumps or valves, the requirements for heavy liquid service would become applicable. (The rules for light liquid service are not triggered until the total concentration of the pure components having a vapor pressure greater than 0.3 kPa at 20 °C is equal to or greater than 20%) The Subpart BB requirements for heavy liquid service can be implemented as straightforward best management practices. If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method, there is the option to forego testing and repair the leak within 5 days of detection. (See 264.1058) Based upon characterization data experience from previous thermal desorption conducted at RFETS, Subpart BB is not applicable or relevant and appropriate because the aqueous phase condensate will contain volatile organics at low (i.e. 1-100ppm) levels.*

*With regard to Subpart CC, 6 CCR 1007-3, Section 264.1080(b) states that "the requirements of this subpart do not apply to the following waste management units at the facility: A waste management unit that is used solely for on-site treatment or storage of hazardous waste that is generated as the result of implementing remedial activities required under the corrective action authorities of RCRA sections 3004(u), 3004(v) or 3008(h), CERCLA authorities, or similar Federal or State Authorities." The activities covered by this PAM fall within this exemption.*

Comment #4      Section 3, REGULATORY FRAMEWORK. This comment questions the use of 40 CFR 265, Subpart P, interim status standards applied to this project, and suggests that it is more appropriate to use the part 264, Subpart X, Miscellaneous Unit standards. The comment further goes on to note the partial incorporation of Subparts J and O, as appropriate under Subpart X.

Response #4      *The commentor is correct that the Subpart P requirements are dated and that Subpart P may not be used to obtain a RCRA permit. From a CERCLA perspective, Subpart P (unlike Subpart X) provides specific substantive criteria that continue to be very relevant and appropriate to thermal desorption activities. Examples from Subpart P include general operating requirements, waste analysis requirements, monitoring and inspection requirements, and closure requirements. (See 40 CFR 265.373, 265.375, 265.377 and 265.381) It is the absence of relevant substantive criteria in Subpart X and elsewhere in RCRA Subtitle C that led RFETS to identify 40 CFR Part 265 Subpart P as ARAR. Therefore, Subpart P was identified as ARAR for the thermal desorption unit, hence, because Subpart P is applicable, the PAM does not require a change to include Subpart X.*

*Finally, the Subpart S temporary unit requirements identified in the PAM, are applicable to any tanks used in conjunction with this remedial/corrective action. For that reason, Subpart J is neither applicable or relevant and appropriate. Because controlled flame combustion is not being used at any point in the thermal desorption process, Subpart O is not applicable or relevant and appropriate.*

Comment #5      Section 3, REGULATORY FRAMEWORK. The performance standard for the TDU is the LDR levels or a large fraction of that for the F001/F002 constituents. The commenters' understanding is that these levels are acceptable for disposal in a RCRA TSDF. In order to perform disposal in an unlined cell that does not meet the requirements of RCRA, the treated soil should meet either a risk-based performance level for unrestricted use, or a level consistent with RCRA delisting.

- Response #5      The TDU Performance Goals, as stated in Table 3-2 of the PAM, were established at levels more stringent than the risk based cleanup levels for the appropriate land use provided in the Rocky Flat Cleanup Agreement (RFCA) In addition, the values established represent a defacto delisting in accordance with CDPHE criteria*
- Comment #6      Section 3 , REGULATORY FRAMEWORK With respect to the VOC and particulate Emission Controls, the list of standards seems incomplete RCRA regulations require controls for these types of units to limit total VOC emissions to less than 3 lb/hr or a 95% control (40 CFR 264 Subpart AA) Furthermore, standard practice for the design of gas treatment systems for radioactive materials facilities involves the use or redundant HEPA filters on the gas emission stream This seems to be a very appropriate control for a TDU that creates a gas stream laden with particulate material from the potentially radioactive soils as its principal air emission source*
- Response #6      As noted in Response 3, RCRA Subpart AA is neither applicable or relevant and appropriate to the mobile thermal desorption contemplated by the PAM Instead, VOC emissions are subject to the Colorado Air Pollution Control Regulations identified in Section 5 2 8 of the PAM*
- Redundant filters (HEPA and HEAF filters) have been used successfully on previous thermal desorption projects and have been incorporated into this project Details regarding filters will be included in the design specifications for the thermal desorption process*
- Comment #7      Section 4 , QUALITY ASSURANCE There is no mention of the quality assurance measures that will be taken to assure that the material treated by the TDU routinely meets the required treatment standards In addition, concern is raised about the inherent heterogenous nature of soils and the adherence to proper protocols for sampling, and additional concerns with respect to worker exposure during sampling*
- Response #7      Quality assurance measures are addressed in the Sampling and Analysis Plan, which was developed in accordance with EPA guidance document 540/G-89/004 Per the RFCA, the Sampling and Analysis Plan is reviewed and approved by the EPA prior to implementation*
- Appropriate controls, to monitor worker exposure during all field activities, are addressed in the project specific Health and Safety Plan, which was developed in accordance with 29 CFR 1926 65*
- Comment #8      Section 5 , IMPLEMENTATION SCHEDULE The schedule that is presented in summary form may be difficult to achieve unless the contractor to perform these activities has already been selected and plans and permit equivalency documents are in place for the operation of the TDU The point of my comment is to request a reasonable opportunity for the excellent results that have been achieved with the mixed waste thermal desorption testing program at RFETS to be factored into the approach for this type of project As a minimum, please clarify what steps and their anticipated duration are included in the pre-operation schedule that is presented*
- Response #8      The project schedule for the Mound Site Source Removal Project is based on similar projects completed at RFETS in 1995 and 1996 The thermal desorption contractor will be selected based on a technical evaluation of several thermal desorption units It is anticipated that contract award will be completed by April 1997*



Comments from Mary Harlow, Rocky Flats Coordinator for the City of Westminster, CO

- Comment #1      No records exist on the volume of contaminants release to the soils from the previously excavated drums. Because of this uncertainty, we believe that it is important that continuous radionuclide monitoring occur on excavated soil, equipment, and personnel during the excavation period. Prior IHSS remediations have shown the unexpected to be expected.
- Response #1      *The Mound Site was previously remediated in 1970 to remove the drums and radiologically contaminated soil. Based on this prior remediation, documentation indicates that the remaining soil does not pose a significant radiological hazard. As a best management practice, radiological monitoring will be performed during all field activities in accordance with the RFETS Radiological Controls Manual and 10 CFR 835, Protection of Occupational Workers. Radiological controls include personnel, equipment, and air (high volume air samplers) monitoring during all field activities. In addition, monitoring of the soil will be performed during excavation activities.*
- Comment #2      Beryllium was noted as a contaminant in the Mound site soils. There is no record of any analysis being performed to determine its presence in the soils to be excavated and remediated. We recommend that the soils be analyzed for this heavy, toxic metal before they are returned to the excavation site for burial.
- Response #2      *The PAM made special note of beryllium, because it was believed to be a component of some of the drums stored at the Mound Site. However, section 2.3.2 of the PAM states that "Analyses of beryllium indicated no detections above Tier I subsurface soil action levels." In fact, 19 soil samples have been collected from the Mound Site. The highest beryllium concentration detected was 1.5 ppm, which is more than two orders of magnitude less than the Tier I subsurface action level of 408 ppm. Therefore, additional beryllium analysis will not be required.*
- Comment #3      The proposed plan notes that the contaminated soil feed stockpile will have a plastic lined ditch constructed around the stockpile to capture local stormwater. The water collected in this ditch may be used to control dust on soils awaiting treatment in the thermal desorption unit. There is no indication that this runoff effluent will be analyzed prior to spraying on the soil. There is reason to believe that the water may contain contaminants that will be aerosolized when spraying occurs.
- Response #3      *The collected water will be re-applied to the contaminated soil feed stockpile in a coarse stream, as opposed to a fine spray mist which tends to atomize part of the water stream. It should also be noted that any contaminants contained in this stormwater will be the same contaminants found in the stockpiled soil, therefore, additional analysis will not be required.*
- Comment #4      There is no mention of portable air monitors at the stockpile site or at any thermally treated pile site. These piles often require retreatment. It is recommended that portable air monitors be installed at each area. Air monitors should be analyzed on a weekly basis to ensure that there are no fugitive emissions from the remediation areas.
- Response #4      *Portable air monitors will be used during excavation, soil stockpiling, and soil treatment activities in accordance with the appropriate Radiological Operating Instruction (ROI). Multiple samples per day will be analyzed.*

- Comment #5      We urge the Department of Energy and Kaiser-Hill to provide timely, accurate reports to the City of Westminster on any unusual incidents of occurrences during the Mound site remediation
- Response #5      *The public will be informed of unusual incidents involving a potential threat to the public via the plant communication network, which is consistent with plant policy*